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| 10/627,688 | 07/28/2003 | Hideki Kato | 2018-756 | 4616 |
| 23117 | 7590 | 01/18/2007 | EXAMINER | |
| NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203 | | | DRODGE, JOSEPH W | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/627,688 | KATO ET AL. | |
| | Examiner | Art Unit | |
| | Joseph W. Drodge | 1723 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 04 January 2007.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-47 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 11,20-22 and 29-47 is/are allowed.

6) Claim(s) 1-10,12-19 and 23-28 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a))

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11092006.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

The indicated allowability of claims 1,6 and 25-27 and claims dependent therefrom, are withdrawn in view of the newly discovered reference(s) to Yamashita et al patent 5,782,223 and further consideration of combination of the formerly applied Izutani et al and Boutwell et al references. Rejections based on the newly cited reference(s) follow.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5,13-19 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boutwell et al patent 5,908,020 in view of Izutani et al of record.

Boutwell et al disclose a module comprising: fuel pump 52, fuel filter 32, filter casing 55/12/20 that encompasses filter and pump (figure 2), filter element 38, fuel outlet 90 to the outside of a side wall of the casing, pressure regulator 104, fuel outlet outflow passage 100, pressure regulator being *radially* outside of sidewall 18 & adjacent portions of the filter casing, the pressure regulator including regulator inlet 102 opening/passage to a retrieve passage 106 that returns flow back through the outer circumference of filter casing to the filter. The structure 90 of Boutwell taken in its entirety presents a downstream outlet or discharge passage 100 that is generally on the side wall of a filter casing and is in-turn fluidly communicating with passage 102 to the pressure regulator and further communicating with a return passage 106, etc. to recirculate (pass fluid downstream) back to fuel filter.

The module defines a fuel tank, since a portion of the space within functions to temporarily retain fuel (column 3, lines 49-52). The pressure regulator is disposed outside of the circumferential wall 20 of the module/tank and is radially disposed with respect to both the filter and fuel pump. The filter element, may be regarded as downstream of the fuel pump, so as to filter contaminants pumped, since a portion of the pumped fuel that passes through

the pressure regulator, is returned to pass through the filter element (column 5, lines 7-12).

These claims all differ from Boutwell in requiring there being a suction filter on an upstream side of the fuel pump as well as downstream filter element. *However, Izutani teaches that including such upstream suction filter improves working performance of the fuel pump of an internal combustion engine fluid supply system (column 3, lines 4-11). It would have been obvious to one of ordinary skill in the art to have augmented the Boutwell arrangement by also providing the upstream suction filter of Izutani to have improved the working performance of the fuel pump.*

Although claims 1 and 25-27 were previously found to be allowable for the combination of an arrangement with a fuel pump both having suction filter upstream thereof and fuel filter downstream thereof together with a compact configuration of the pressure regulator being radially outside of the filter casing outer circumference, and not to combine features of Izutani and Boutwell since the references are directed to different types of internal combustion engines (automotive versus water-surface vehicle-containing). However, it is now deemed obvious to modify Boutwell in view of Izutani, since both references are directed to reliably, efficiently pumping and purifying fuel to internal combustion engines and to arranging components of a fuel pump/fuel filter and pressure regulator arrangement in a compact configuration because of the need to conserve space on the vehicle.

Figure 2 further shows both fuel outflow passage/outlet passage and retrieve passage as containing bent horizontal and vertical portions as in claims 2,18 and 19.

Also the pressure regulator is substantially between fuel outlet outlet portion 100 and sidewall 21 of circumference of casing, for claim 3.

For claims 4, 23,24 and 26, no fuel tank is positively recited.

For claims 5 and 28, the regulator is disposed on sidewall 18 of casing.

For claims 13 and 25, portion 20 of the casing that holds the regulator projects from body portion 12 of casing.

For claim 14-16, the filter casing is substantially the length of the fuel pump and substantially covers the pump.

For claim 17 and 24, discharge portion 72 or 52 of pump is axially aligned with vertical center axis of pump.

For claims 25 and 36, also see projecting portion 117 of the casing which holds the regulator.

For claim 26, figure 1 additionally indicates pressure regulator length clearly being greater than the relative short spacing of casing bottom wall and fuel tank bottom wall.

Claim 27 limitations were all discussed per claim 6.

For claim 28, regulator is disposed on sidewall 122 of casing.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Izutani et al, of record, in view of Stone et al patent 5,858,227 and newly cited Yamashita et al patent 5,782,223.

Izutani et al disclose fuel pump 110, fuel filter 120, casing 126 that covers filter and pump, filter element 124, pressure regulator 130, check valve being downstream of pump and in the fuel inlet to the filter (column 4, lines 60-62), the pump including a discharge portion (*upper portion of body 110*) that is coupled to passage 112/134 that has the check valve and functions both as an outlet of the pump and inlet of the filter (column 3, lines 61-65 and column 4, lines 49-54 and 60-62), covered by the casing (column 4, lines 43-44). Specifically, Izutani discloses the check valve to be contained in the discharge pipe of the fuel filter (column 4, lines 60-62). The inlet to the fuel filter is accommodated within the radius of the outlet or discharge portion of the pump (figures)/

Claim 6 now differs in requiring the check valve to be accommodated in an inner surface of the fuel inlet to the fuel filter, and to have an O-RING seal disposed on the valve's downstream side so as to seal between the discharge portion of fuel pump and fuel inlet of the fuel filter. However, Stone et al teach a fuel filter 150, with fuel inlet passage 160,162 having check valve 200 and O-ring seal 196/197 downstream of the check valve at the downstream proximal end of the inlet passage (figures 8 and 9 and column 7, lines 1-14, etc.), such check valve necessarily being accommodated within the inner surface of fuel pump discharge or filter inlet conduit. Also, Yamashita teaches a check valve in a conduit serving as fuel pump outlet and fuel filter inlet in arrangement similar to Izutani with cylindrical gasket or rubber member or O-ring just downstream of such check valve (see column 4, lines 20-32 and figures. If necessary, Yamashita and Izutani teach O-rings at other locations and rubber gaskets and O-rings are considered

obvious equivalents for each other. It would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated such O-ring seal and check valve arrangement of Stone et al and Yamashita, into the Izutani arrangement, to more completely provide sealing of flow into the filter when changing the filter (see also Stone et al Abstract for explicit statement of such motivation).

Although claim 6 was previously held to be distinguished in view of recitation of the fuel inlet of the fuel filter being accommodated within inner circumference of discharge portion of fuel pump with check valve accommodated in inner surface of fuel inlet; on further consideration, the figures of Izutani are now interpreted as clearly showing an inlet conduit to the fuel filter as being of smaller diameter than fuel pump discharge and axially aligned therewith, hence accommodated within discharge portion therewith; and the newly recited Yamashita reference is seen to teach a check valve proximate the inlet to the fuel filter in an arrangement quite similar to that of Izutani.

Figure 1 shows the axial alignment and overlapping of fuel inlet, discharge portion and check valve for claim 7.

For claim 8, the regulator portions 144/146/149 are, at least, are outside of the casing circumference [also applying to claim 35].

For claim 9, see casing sidewall 122. For claims 10 and 37, see discharge opening 142 on sidewall of casing.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boutwell et al in view of Izutani et al. Claim 12 differs in requiring casing to be of resin material,

as taught by Izutani at column 5, lines 3-4 and lines 42-44. It would have been obvious to one of ordinary skill in the art to have employed the resin material of Izutani to make the casing of Boutwell to enable discharge of static electricity.

ALLOWABLE SUBJECT MATTER

Claims 11 and 38 respectively distinguish in view of recitation of pressure regulator being in the through hole of the fuel outlet so that it covers one open end thereof. Such configuration non-obviously gives a more compact arrangement.

Claims 20-22 respectively distinguish in view of limitations pertaining to filter casing having inner and outer cylinder with accommodation chamber therebetween accommodating fuel filter, such accommodation chamber facilitating convenient replacement of the fuel filter.

Claim 29 and claims dependent therefrom now are distinguished over the prior art of record in view of recitation of the suction filter not only overlapping the pressure regulator in the range of the center axial direction of the fuel pump, but also facing the pressure regulator in a radial direction of the fuel pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

January 15, 2007

*Joseph Drodge
Primary Examiner*